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VOLUNTARY AGREEMENT FOR  
REMEDIAL INVESTIGATION AND SOURCE CONTROL MEASURES  
DEPT OF ENVIRONMENTAL QUALITY  
NORTHWEST REGION

DEQ NO. LQDVC-NWR-02-03

BETWEEN:

Brix Maritime Company

AND:

Oregon Department of Environmental Quality (DEQ)

EFFECTIVE DATE:

May 8, 2002

Pursuant to ORS 465.260(2) and (4), the Director, Oregon Department of Environmental Quality (DEQ), enters this Agreement with Brix Maritime Company (Brix). This Agreement contains the following provisions:

|   | Page |
|---|------|
| I. Recitals.....  | 1    |
| II. Agreement.....  | 4    |
| A. Work.....  | 4    |
| B. Public Participation.....                                  | 5    |
| C. DEQ Access and Oversight.....                              | 6    |
| D. Project Managers.....                                      | 6    |
| E. Notice and Samples.....                                    | 7    |
| F. Quality Assurance.....                                     | 7    |
| G. Records.....   | 7    |
| H. Progress Reports.....                                      | 8    |
| I. Other Applicable Laws.....                                 | 8    |
| J. Reimbursement of DEQ Costs.....                            | 9    |
| K. Force Majeure.....   | 10   |
| L. Prior Approval.....  | 10   |
| M. Dispute Resolution.....                                    | 10   |
| N. Enforcement of Agreement and<br>Reservation of Rights..... | 11   |
| O. Hold Harmless.....   | 11   |
| P. Parties Bound.....   | 12   |
| Q. Modification.....  | 12   |
| R. Duration and Termination.....                              | 12   |

**I. RECITALS**

- A. Brix is a Delaware corporation authorized to do business in the State of Oregon and is a "person" under ORS 465.200(20).
- B. The Brix site occupies approximately 3.7 acres at 9030 NW St. Helens Road, in Portland, Oregon. The Site is bordered to the northeast by the Willamette River, to the southwest by railroad tracks and NW St. Helens Road, to the northwest by a bulk fuel storage facility, and to the southeast by industrial use property. The general location of the property is shown in Attachment A to



this Agreement. The property is referred to in this Order as the "Site" or "Facility."

C. The Brix site is located within or near what is known as the Portland Harbor, a six-mile reach of the Willamette River between Sauvie Island and Swan Island. A 1997 study by DEQ and the U.S. Environmental Protection Agency identified elevated levels of hazardous substances in shallow, near-shore sediments throughout the Portland Harbor. The Portland Harbor sediments will be the subject of a Remedial Investigation and Feasibility Study conducted outside this Order under EPA oversight.

D. Brix has owned the Site since 1979. At the time Brix acquired the Site, it was vacant and undeveloped. Since then Brix has developed the Site for a dispatch and coordination office for its tugboats, including maritime office space, purchasing, maintenance, storage, fueling, crew rotation, and permanent moorage of a covered maintenance work barge. The Site contains two primary structures: an office building and a storage building. With the exception of the riverbank, the Site is entirely developed and covered with asphalt, concrete or buildings. In its operations at the Site, Brix uses diesel fuel, gasoline, lubricating oils, hydraulic fluid, antifreeze, kerosene, paints, and paint thinner. Brix currently generates small quantities of used oil and has generated waste paint in the past. Brix reports that these materials are currently stored indoors and/or under cover to prevent exposure to rain or storm water runoff. Brix alleges that it implements strict inventory controls to ensure that all paint purchased at the Site is used and no waste paint is generated. Brix reports that it does not handle, store, treat, generate or dispose of hazardous waste at the Site.

E. Between 1995 and 1999, sixteen spills in the vicinity of the Brix Site were reported to DEQ. Brix alleges its policy is to report any and all spills observed in or near the river regardless of the source. The spilled materials were generally reported as petroleum products. Several spill reports appear to indicate diesel, lube oil, or bilge water originated from boat operation and maintenance activities at or near the dock at the Site.

F. In January 1993, a release of lube oil was reported to DEQ (LUST #26-93-009) relating to a hole in a 30-weight lube oil transfer line next to the underground storage tank (UST) system on the Site. Brix conducted an investigation and removed approximately 50 cubic yards (cy) of oil-contaminated soil. A report submitted to DEQ, prepared by Hahn and Associates (1994) states that soil with elevated total petroleum hydrocarbon (TPH) concentrations (up to 53,400 milligrams per kilogram (mg/kg)) remain on-site near the location of the pipeline leak.

G. A 2,000-gallon gasoline underground storage tank (UST) and 6,000-gallon lube oil UST were removed from the Site in October 1998. The remaining two 20,000-gallon diesel USTs and one 6,000-gallon

lube oil UST were certified and upgraded in 1998. A diesel release was reported to DEQ on October 19, 1998. DEQ alleges that complete information required by the UST statutes and rules regarding the closure of the two USTs in 1998 has not been submitted to DEQ.

H. On March 3, 1999, DEQ requested information regarding site operations on the Site. On March 31, 1999, Brix provided the requested information to DEQ.

~~I. In November 1999, DEQ requested that Brix enter into a Voluntary Letter Agreement to perform a preliminary assessment with sampling at the Site. In December 1999, Brix signed the letter agreement.~~

J. In February 2000, Brix submitted an Expanded Preliminary Assessment Report to DEQ. In April 2000, DEQ requested that sampling be conducted to determine whether releases of hazardous substances have occurred at the site and that additional information on the facility be submitted.

K. In October 2000, in response to DEQ's April 20, 2000 comments, Brix submitted a Supplemental Preliminary Assessment Report to DEQ. In December 2000, DEQ identified areas in which it disagreed with conclusions in the report and requested that additional sampling be conducted to determine whether releases of hazardous substances have occurred at the site.

L. Brix conducted a soil and groundwater investigation at the Site in May-June 2001. This investigation was performed independently without DEQ oversight. This investigation documented the presence of total petroleum hydrocarbons (TPH), benzene, ethylbenzene, xylenes, naphthalene, iso-propylbenzene, n-propylbenzene, 1,2,4-trimethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, polycyclic aromatic hydrocarbons (PAHs) in soil and/or groundwater.

M. In September 2001, Brix submitted its Sampling Results Report to DEQ, which report concluded, based on the site investigations and the risk evaluation presented in the report, that no further characterization or remediation of soils and groundwater is necessary and that the Site is not a source of constituents to the river. In November 2001, DEQ accepted the report as meeting DEQ's requirements for a Preliminary Assessment with sampling, but notified Brix that it did not agree with the conclusions or the risk evaluation presented in the report.

N. The following contaminants were detected in a sediment sample collected approximately 100 feet downstream of the Site at concentrations exceeding baseline concentrations established for the Portland Harbor Study Area: butylbenzyl phthalate and high and low molecular weight polycyclic aromatic hydrocarbons (LPAHs and HPAHs).

O. The substances described in Sections E, F, G, L, and N are "hazardous substances" under ORS 465.200(15). The Brix site is a

"facility" under ORS 465.200(12). DEQ has alleged that hazardous substances are present in soil, groundwater, and sediments at or near the facility, that the presence of those substances constitutes a "release" or "threat of release" into the environment under ORS 465.200(21), and that further site investigations are needed to fully characterize the nature and extent of such releases at, on or from the Site and to support the conclusions in Brix's Sampling Results Report.

P. Therefore, DEQ has requested and Brix has agreed to enter into this Voluntary Agreement to implement the activities required by this Agreement, which DEQ considers to be necessary to protect public health, safety, and welfare and the environment.

## II. AGREEMENT

The parties agree as follows:

### A. Work

#### 1. Remedial Investigation

Brix shall perform a remedial investigation satisfying OAR 340-122-0080, the terms and schedule of a DEQ approved work plan developed by Brix, and applicable elements of the Scope of Work contained in Attachment B to this Agreement. Brix may specify, in the proposed work plan, elements of the Scope of Work that Brix considers inapplicable or unnecessary to the remedial investigation for the facility. Brix may propose to perform the work in phases or operable units.

#### 2. Source Control Measures

For any unpermitted discharge or migration of contaminants to the Willamette River or sediments identified in the remedial investigation, Brix shall evaluate such discharge or migration, and then develop and implement source control measures in accordance with the Scope of Work.

#### 3. DEQ-Review

DEQ shall provide review, approvals/disapprovals, and oversight in accordance with the schedule set forth in the Scope of Work, or as soon as thereafter practicable in the event staff resources or workload prevent compliance with the schedule. Any DEQ delay shall correspondingly extend Brix's schedule for a related deliverable or activity.

#### 4. Additional Measures

Brix may elect at any time during the term of this Agreement to undertake remedial measures other than those required under this Agreement necessary to address a release or

threatened release of hazardous substances at the facility. Such other measures shall be subject to prior approval by DEQ. Prior approval shall not be required in emergencies where Brix reasonably believes a delay in undertaking a particular action will threaten human health, safety, or the environment; provided that Brix notifies DEQ of the emergency and action as soon as is practicable.

#### 5. Dredging Activities

Brix shall notify the DEQ project manager at least sixty (60) days before undertaking any dredging or other activity that might disturb sediments at or near the facility. In its notice of dredging or other activity, Brix shall: (a) Evaluate the concentration of hazardous substances present in and below the affected sediments based on sampling and analyses performed in advance of the notice; (b) Document the steps to be taken to ensure that both the activity and the subsequent management and disposal of dredged spoils will be conducted in a manner protective of human health and the environment; and (c) Evaluate the effect of the activity on the Portland Harbor Remedial Investigation and Feasibility Study. Dredging may proceed under existing permits subject to the above notice and implementation of any additional dredging or management practices required by DEQ. DEQ shall also be notified of and copied on any permit application to the Oregon Division of State Lands or United States Army Corps of Engineers for dredging or other activity disturbing sediments adjacent to the Brix site. Notwithstanding the foregoing, Brix may conduct dredging or other activities that might disturb sediments at or near the facility without giving DEQ 60 days' notice, if such activities are conducted in accordance with an effective Dredging Agreement between Brix and DEQ that describes the notification and sampling requirements, dredging, management, and disposal practices, and any other measures that Brix will take to ensure that all activities within the scope of the Dredging Agreement are conducted in a manner that is protective of human health and the environment and consistent with Harborwide cleanup work.

#### **B. Public Participation**

Upon execution of this Agreement, DEQ will provide public notice of this Agreement through issuance of a press release, at a minimum to a local newspaper of general circulation, describing the measures required under this Agreement. Copies of the Agreement will be made available to the public. DEQ shall provide Brix a draft of such press release and consider any comments by Brix on the draft press release, before publication.

### C. DEQ Access and Oversight

1. Brix shall allow DEQ to enter all portions of the facility at all reasonable times for the purposes, among other things, of inspecting records relating to work under this Agreement; observing Brix's progress in implementing this Agreement; conducting such tests and taking such samples as DEQ deems necessary; verifying data submitted to DEQ by Brix; and, using camera, sound recording, or other recording equipment for purposes relating to work under this Agreement. Upon Brix's verbal request, DEQ shall make available to Brix a split or duplicate of any sample or recording taken by DEQ pursuant to this Agreement. DEQ shall use its best efforts, but not be obligated, to provide reasonable advance notice before entering the facility. DEQ shall adhere to all health and safety requirements of the facility, as identified in the applicable Health and Safety Plan, including, but not limited to, requirements in portions of the Site where outside visitors must be accompanied by company personnel.
2. Brix shall permit DEQ to inspect and copy all records, files, photographs, documents, and data in connection with work under this Agreement, except that Brix shall not be required to permit DEQ inspection or copying of items subject to attorney-client or attorney work product privilege. DEQ shall use its best efforts, but not be obligated, to provide reasonable notice before records inspection and copying requests.
3. Attorney-client and work product privileges may not be asserted with respect to any records required under Paragraphs II.G.1 and II.G.2 of this Agreement. Brix shall identify to DEQ--by addressor-addressee, date, general subject matter, and distribution--any document, record, or item withheld from DEQ on the basis of attorney-client or attorney work product privilege. DEQ reserves its rights under law to obtain documents DEQ asserts are improperly withheld by Brix.

### D. Project Managers

1. To the extent possible, all reports, notices, and other communications required under or relating to this Agreement shall be directed to:

DEQ Project Manager:

Rodney Struck  
Voluntary Cleanup Program  
Oregon DEQ  
2020 SW Fourth Avenue, Suite 400  
Portland, Oregon 97201-4987  
Phone: (503) 229-5562  
FAX: (503) 229-6899  
email: [rodney.struck@deq.state.or.us](mailto:rodney.struck@deq.state.or.us)

Brix Project Managers:

John Edwards  
David Templeton  
Anchor Environmental, Inc.  
1411 4<sup>th</sup> Avenue, Suite 1210  
Seattle, WA 98101  
Phone: (206) 287-9130  
FAX: (206) 287-9131  
email: [jedwards@anchorenv.com](mailto:jedwards@anchorenv.com)

email: [dtempleton@anchorenv.com](mailto:dtempleton@anchorenv.com)

with a copy to:

Kim Maree Johannessen, Esq.  
Johannessen & Associates, P.S.  
5413 Meridian Ave. N., Suite C  
Seattle, WA 98103  
Phone: (206) 632-2000  
FAX: (206) 632-2500  
email: [kmj@johanassoc.com](mailto:kmj@johanassoc.com)

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- ~~2. Brix's and DEQ's Project Managers shall be available and have the authority to make day-to-day decisions necessary to complete the Scope of Work under this Agreement.~~
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#### **E. Notice and Samples**

Brix shall make every reasonable attempt to notify DEQ of any excavation, drilling, or sampling to be conducted under this Agreement at least five (5) working days before such activity but in no event less than twenty-four (24) hours before such activity. Upon DEQ's verbal request, Brix shall make available to DEQ a split or duplicate of any sample taken pursuant to this Agreement. DEQ shall make every effort to complete analysis of any split or duplicate sample on a schedule consistent with Brix's schedule for related activities. DEQ shall provide Brix with copies of all analytical data from such samples as soon as practicable.

#### **F. Quality Assurance**

Brix shall conduct all sampling, sample transport, and sample analysis in accordance with the Quality Assurance/ Quality Control (QA/QC) provisions approved by DEQ as part of the work plan. All plans prepared and work conducted as part of this Agreement shall be consistent with DEQ's "Quality Assurance Policy No. 760.00". Brix shall ensure that each laboratory used by Brix for analysis performs such analyses in accordance with such provisions.

#### **G. Records**

1. In addition to those technical reports and documents specifically required under this Agreement, Brix shall provide to DEQ within thirty (30) days of DEQ's written request copies of documents generated in connection with the work required under this Agreement, including QA/QC memoranda and QA/QC audits, draft and final deliverable plans, final reports, task memoranda, field notes, and laboratory analytical data that have undergone data quality validation.
2. If DEQ determines that review of raw data or preliminary laboratory reports is necessary in order to ensure protection of public health, safety, and welfare and the environment,

that information will be provided by Brix within ten (10) days of DEQ's written request.

3. Brix and DEQ shall preserve all records and documents in possession or control of Brix and DEQ, respectively, or their employees, agents, or contractors that relate in any way to activities under this Agreement for at least five (5) years after termination under Subsection II.R. of this Agreement; provided that after such 5-year period, Brix and DEQ shall provide the other sixty (60) days notice before destruction or other disposal of such records and make them available for inspection and copying.

4. Brix may assert a claim of confidentiality regarding any documents or records submitted to or copied by DEQ pursuant to this Agreement. DEQ shall treat documents and records for which a claim of confidentiality has been made in accordance with ORS 192.410 through 192.505. If Brix does not make a claim of confidentiality at the time the documents or records are submitted to or copied by DEQ, the documents or records may be made available to the public without notice to Brix.

#### **H. Progress Reports**

During each quarter of this Agreement, Brix shall deliver to DEQ on or before the fifteenth (15<sup>th</sup>) day following the end of the calendar quarter two (2) copies of a progress report containing the following items. DEQ anticipates that the progress report will not exceed 2 pages in length.

1. Actions taken under this Agreement during the previous quarter;
2. Actions scheduled to be taken in the next quarter;
3. Sampling, test results, and any other data generated by Brix during the previous quarter; and
4. A description of any problems experienced during the previous quarter and the actions taken to resolve them.

#### **I. Other Applicable Laws**

Subject to ORS 465.315(3), all actions under this Agreement shall be performed in accordance with all applicable federal, state, and local laws and regulations. Without limiting the foregoing, all action under this Agreement shall be performed in accordance with any applicable federal, state and local laws and regulations related to archeological objects and sites and protection thereof. If archeological objects or human remains are discovered during any investigation, removal or remedial activities at the Site, Brix shall, at a minimum, (a) stop work immediately in the vicinity of the find, (b) provide any



notifications by ORS 97.745 and ORS 358.920, (c) notify Kim Cox, Portland Harbor Project Coordinator at (503) 229-6590 or the DEQ project manager for the Brix site within 24 hours of the discovery, and (d) use best efforts to ensure that Brix and its employees, contractors, counsel and consultants keep the discovery confidential, including but not limited to, refraining from contacting the media or any third party or otherwise sharing information regarding the discovery with any member of the public, and immediately notifying DEQ of and directing any inquiry from the media or public regarding the discovery to DEQ.

#### **J. Reimbursement of DEQ Oversight Costs**

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1. Prior to entry of this Agreement, DEQ shall submit to Brix an estimate of costs incurred by DEQ to date for site assessment activities and preparation and negotiation of this Agreement. Upon entry of this Agreement, DEQ shall submit to Brix an invoice for costs actually and reasonably incurred by DEQ prior to entry of this Agreement for site assessment activities and preparation and negotiation of this Agreement and an estimate of future DEQ oversight costs associated with Brix's implementation of this Agreement. DEQ's invoice for direct costs will include a direct labor summary showing the persons charging time, the amount of time, and the nature of the work performed.
2. DEQ shall submit to Brix a monthly statement of costs incurred after issuance of this Agreement by DEQ in connection with oversight of Brix's implementation of this Agreement. Each invoice will include a summary of costs billed to date. DEQ's invoices for direct costs will include a direct labor summary showing the persons charging time, the amount of time, and the nature of the work performed.
3. DEQ or State of Oregon oversight costs payable by Brix shall include both direct and indirect costs. Direct costs shall include site-specific expenses, DEQ contractor costs, and DEQ legal costs. Indirect costs shall include those general management and support costs of the DEQ and of the applicable administering division (e.g. Waste Prevention and Management Division, Environmental Cleanup Division, Northwest Region) that are allocable to DEQ oversight of this Agreement and not charged as direct, site-specific costs. Indirect costs shall be based on a percentage of direct personal services costs. DEQ oversight costs also shall include the surcharge required by ORS 465.333.
4. Within thirty (30) days of receipt of a DEQ statement, Brix shall pay the amount of costs billed by check made payable to the "State of Oregon, Hazardous Substance Remedial Action Fund". Brix shall pay simple interest of 9% per annum on the unpaid balance of any oversight costs, which interest shall begin to accrue at the end of the 30-day payment period.

#### **K. Force Majeure**

1. If any event occurs that is beyond Brix's reasonable control and that causes or might cause a delay or deviation in performance of the requirements of this Agreement, Brix shall promptly notify DEQ's Project Manager verbally of the cause of the delay or deviation and its anticipated duration, the measures that have been or will be taken to prevent or minimize the delay or deviation, and the timetable by which Brix proposes to carry out such measures. Brix shall confirm in writing this information within five (5) working days of the verbal notification.
2. If Brix demonstrates to DEQ's satisfaction that the delay or deviation has been or will be caused by circumstances beyond the reasonable control and despite the due diligence of Brix, DEQ shall extend times for performance of related activities under this Agreement as appropriate. Circumstances or events beyond Brix's control might include but are not limited to acts of God, unforeseen strikes or work stoppages, fire, explosion, riot, sabotage, or war. Increased cost of performance or changed business or economic circumstances shall be presumed not to be circumstances beyond Brix's reasonable control.

#### **L. Prior Approval**

Where DEQ review and approval is required for any plan or activity under this Agreement, Brix shall not proceed to implement the plan or activity until DEQ approval is received. Any DEQ delay in granting or denying approval shall correspondingly extend the time for completion by Brix. Prior approval shall not be required in emergencies where Brix reasonably believes a delay in undertaking a particular action will threaten human health, safety, or the environment; provided that Brix notifies DEQ of the emergency and action as soon as is practicable.

#### **M. Dispute Resolution**

In the event of disagreement between Brix and DEQ regarding implementation of this Agreement, Brix and DEQ shall, in the following order: 1) make a good faith effort to resolve the dispute between technical Project Managers; 2) if necessary, refer the dispute for resolution by the immediate supervisors of the Project Managers; 3) if necessary, provide each other their respective positions in writing and refer the dispute for resolution by DEQ's Administrator of the Land Quality Division or the Northwest Region Administrator and Brix's Regional Director; and 4) if necessary, refer the dispute for resolution by DEQ's Director and Brix's President. Brix shall have the right to have counsel present during any dispute resolution meetings between DEQ and Brix. DEQ's final decision after such dialogue shall be

enforceable under this Agreement. The time required for dispute resolution shall correspondingly extend Brix's schedule for all pending, affected deliverables or activities.

**N. Enforcement of Agreement and Reservation of Rights**

1. In the event of Brix's failure to comply with this Agreement (including any failure to reimburse oversight costs), DEQ may enforce this Agreement as an order under ORS 465.260(5) or may terminate this Agreement after thirty (30) days written notice to Brix.
- ~~2. In the event of DEQ's failure to provide oversight in accordance with this Agreement, Brix may terminate this Agreement after thirty (30) days written notice to DEQ. Costs incurred or obligated by DEQ before the effective date of any termination of this Agreement shall be owed under the Agreement notwithstanding such termination.~~
3. Brix does not admit any facts (including those recited herein), legal issues, liability, or violation of law by virtue of entering this Agreement.
4. Except as otherwise provided in Subsection II.O., nothing in this Agreement shall prevent Brix from exercising any rights of contribution or indemnification Brix might have against any person, including the State of Oregon, regarding the release(s) of hazardous substances that are the subject of this Agreement; provided Brix waives any right it might have under ORS 465.260(7) to seek reimbursement from the Hazardous Substance Remedial Action Fund for costs incurred under this Agreement.
5. Brix agrees not to litigate, in any proceeding brought by DEQ to enforce this Agreement, any issue other than Brix's or DEQ's compliance with this Agreement.
6. The Brix site is part of the Portland Harbor, which was listed on the federal National Priority List (NPL) in December 2000. DEQ remains the lead agency with respect to the Brix site. If EPA orders any conflicting or overlapping activities, this Agreement shall be modified, as necessary, to prevent conflicting or duplicative obligations. Any other additional EPA-imposed obligations may be addressed by modification of this Agreement under Subsection II.Q. or by separate agreement or order.

**O. Hold Harmless**

1. Brix shall save and hold harmless the State of Oregon and its commissions, agencies, officers, employees, contractors, and agents, and indemnify the foregoing, from and against any and all claims arising from acts or omissions related to this

Agreement of Brix or its officers, employees, contractors, agents, receivers, trustees, or assigns. DEQ shall not be considered a party to any contract made by Brix or its agents in carrying out activities under this Agreement.

2. To the extent permitted by Article XI, Section 7, of the Oregon Constitution and by the Oregon Tort Claims Act, the State of Oregon shall save and hold harmless Brix and its officers, employees, contractors, and agents, and indemnify the foregoing, from and against any and all claims arising from acts or omissions related to this Agreement of the State of Oregon or its commissions, agencies, officers, employees, contractors, or agents (except for acts approving or omissions constituting approval of any activity of Brix under this Agreement). Brix shall not be considered a party to any contract made by DEQ or its agents in carrying out activities under this Agreement.

**P. Parties Bound**

This Agreement shall be binding on the parties and their respective successors, agents, and assigns. The undersigned representative of each party certifies that he or she is fully authorized to execute and bind such party to this Agreement. No change in ownership or corporate or partnership status relating to the facility shall in any way alter Brix's obligations under this Agreement, unless otherwise approved in writing by DEQ.

**Q. Modification**

DEQ and Brix may modify this Agreement by mutual written agreement.

**R. Duration and Termination**

Upon completion of work under this Agreement, Brix shall submit to DEQ a written notice of completion. This Agreement shall be deemed satisfied and terminated upon payment of all oversight costs owed and upon DEQ's issuance of a letter acknowledging satisfactory completion of activities in accordance with this Agreement. Such letter shall be issued within sixty (60) days of receipt of notice of completion evidencing satisfactory completion of activities in accordance with this Agreement and payment of outstanding DEQ oversight costs, or as soon thereafter as is reasonably practicable. In the event that DEQ is unable to issue such letter within sixty days of receipt of Brix's written notice of completion, DEQ shall provide Brix with a written schedule upon which DEQ anticipates review of Brix's work and issuance of that letter.

**BRIX MARITIME COMPANY**

By: \_\_\_\_\_

*Greg G. Johnson*  
(Name)

Date: \_\_\_\_\_

5.1.02

*Regional Director*  
(Title)

**STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY**

By: \_\_\_\_\_

*Greg R. ...*  
(Name)

Date: \_\_\_\_\_

5/8/2002

*Acting D.A.*  
(Title)

KBB/GEN30415



Figure 1  
Site Location

Source: Aerial photograph acquired from the  
Metro Data Resource Center, Oregon, 1997.

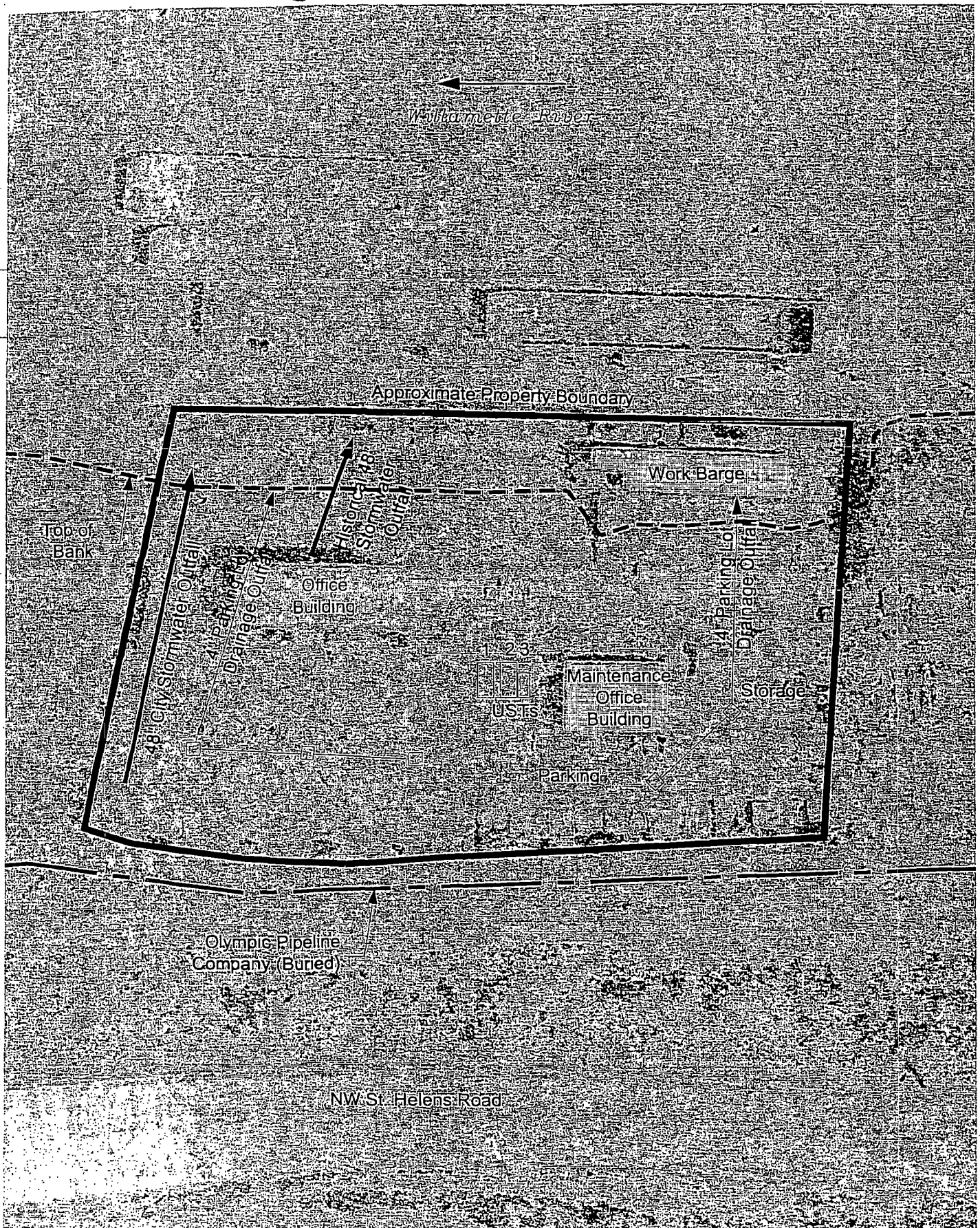
0 1300  
Scale in Feet



**ANCHOR**  
ENVIRONMENTAL, L.L.C.

10/04/00 BRX002A-01.DWG 89-058-01





Source: Aerial photograph acquired from WAC, Corp. 1991.

Figure 2  
Site Map



**ATTACHMENT B**

**SCOPE OF WORK FOR  
REMEDIAL INVESTIGATION AND SOURCE CONTROL MEASURES**

**I. SCHEDULE**

Respondent shall submit for DEQ review and approval Remedial Investigation (RI), Risk Assessment (RA), and Source Control Measures (SCM) work plans and reports which address all elements of this Scope of Work (SOW). Elements of the SOW may be addressed by alternative means or by using existing data or information to the extent that the data are applicable, meet the objectives of the RI, and are of acceptable QA/QC.

All work completed under this Agreement shall proceed in accordance with the schedule below:

|  |   |
|--|---|
| <b>RI Assessment Work Plan (if Respondent elects to perform a Pre-RI Assessment)</b> | A Pre-RI Assessment Work Plan will be submitted to DEQ within 15 days of the issuance of this Agreement.  |
| <b>DEQ Review and Comment</b>  | To Respondent within 15 days of receipt of Pre-RI Assessment Work Plan.   |
| <b>Pre-RI Assessment Report</b>  | To be specified in Pre-RI Assessment Work Plan.   |
| <b>RI Proposal</b>   | An RI proposal will be submitted to DEQ within 30 days of issuance of this Agreement or, if a Pre-RI Assessment is performed and DEQ determines that an RI is necessary, based on the results of a Pre-RI Assessment, within 30 days of approval of the Pre-RI Assessment Report. |
| <b>DEQ Review and Comment</b>  | To Respondent within 30 days of receipt of RI Proposal.   |
| <b>Draft RI Work Plan</b>  | To DEQ within 30 days of receipt of DEQ comments on RI Proposal.  |
| <b>DEQ Review and Comment</b>  | To Respondent within 30 days of receipt of draft RI Work Plan.  |
| <b>Final RI Work Plan</b>  | To DEQ within 30 days of receipt of DEQ comments on draft RI Work Plan.   |
| <b>Initiation of RI</b>  | To be specified in Project Management section of RI Work Plan.  |
| <b>Initiation of SCM</b>   | To be specified in Project Management section of RI Work Plan.  |



The schedule for additional deliverables specified in this SOW (e.g., Risk Assessment work plan, Remedial Investigation report, Risk Assessment report, and Source Control Measure work plan) should be specified in the Project Management Plan section of the RI work plan.

All work plans may be amended by Respondent as necessary to reflect or incorporate newly discovered information and/or environmental conditions. Additional work plans and work plan amendments are subject to DEQ review and approval and shall be processed according to ~~schedules negotiated between the parties at the time of each phase change or task addition.~~ Respondent shall initiate and complete work according to the schedule specified in the applicable approved work plan or amendment. ~~Future schedules or deadlines for all submittals,~~ work plans or other requirements shall be adjusted accordingly for the time necessary for preparation, approval and implementation of additional work plans, investigations and/or reports not contemplated in the original schedule and shall be approved by DEQ in writing.

## II. OBJECTIVES

Work performed under this Agreement shall complement and incorporate existing facility information with the following specific objectives. For purposes of this Scope of Work, the "facility" shall exclude that portion of the facility that is below the mean high-water mark of the Willamette River. The parties acknowledge that a separate Portland Harbor Sediment RI/FS is proceeding with respect to the portion of the Willamette River below the mean high-water mark, and it is not the purpose of this Scope of Work to duplicate any of that work:

- A. Identify and characterize all hazardous substance source areas at the **Brix Maritime** facility. Source areas shall be characterized through a review of historical information and the collection of environmental samples for chemical, geotechnical, and other analyses. The evaluation of source areas shall focus on upland operations that may have resulted in a release of hazardous substances.
- B. Evaluate all contaminant migration pathways at the **Brix Maritime** facility. Key elements relevant to contaminant migration include, but are not limited to, the rate and direction of groundwater flow, subsurface contaminant migration to the Willamette River, overland contaminant migration to the Willamette River, storm water discharge to the Willamette River, direct and indirect release to the Willamette River, preferential migration pathways, volatilization, dust entrainment, and riverbank seepage.
- C. Determine the nature, extent, and distribution of hazardous substances in affected media at the **Brix Maritime** facility. This analysis should focus on the vertical and horizontal extent of source area contamination, groundwater contamination, and surface and subsurface soil contamination.

- D. Identify all current and reasonably likely future human and ecological receptors at the **Brix Maritime** facility. Receptors shall include human and ecological receptors that may be exposed to hazardous substances at the facility. This analysis should consider all relevant contaminant migration pathways and the nature, extent and distribution of hazardous substances in affected media.
- E. Collect sufficient data and historical information to allow the identification of possible areas of sediment contamination adjacent to the **Brix Maritime** facility. Areas of potential sediment contamination shall be characterized through the Portland Harbor Sediment RI/FS. Data collection and evaluation shall consider the potential for contaminant migration to the Willamette River and over or in-water releases of hazardous substances resulting from operations at the **Brix Maritime** facility. Respondent may be required to perform limited sediment or benthic sampling adjacent to the facility as necessary to address an objective of this Scope of Work but will not be required to conduct sediment or benthic sampling that is duplicative of sampling under the Portland Harbor sediment RI/FS.
- F. Evaluate the risk to human health and the environment from releases of hazardous substances at or from the **Brix Maritime** facility through the performance of human health and ecological risk assessments.
- G. Identify hot spots of contamination, if any, at the **Brix Maritime** facility.
- H. Generate or use data of sufficient quality for site characterization and risk assessment at the **Brix Maritime** facility.
- I. Develop the information necessary to evaluate and design necessary source control measures to address contaminant releases from the **Brix Maritime** facility.
- J. Implement necessary source control measures to address contaminant releases from the **Brix Maritime** facility.

### III. Pre-RI Assessment Work Plan and Report

Respondent may elect to perform a Pre-RI Assessment as the initial task under this Agreement. The primary purpose of the Pre-RI assessment is to determine which media and pathways (e.g., groundwater, surface water, air, and direct contact) are affected by site related hazardous substances. The Pre-RI Assessment will include a review of the facility history, review of current facility conditions, and may include focused sampling activities, to assess potential past and

present sources of hazardous substances and determine if there has been a release from these sources to surface water or sediments, as appropriate.

If Respondent elects to perform a Pre-RI Assessment, Respondent shall submit a Pre-RI Assessment Work Plan for DEQ review and approval. The Pre-RI Assessment Work Plan shall describe the objectives, deliverables, schedule, and specific tasks that will be performed for the Pre-RI Assessment. If the Pre-RI Assessment includes sampling, the work plan shall describe the sampling locations and the methodologies that will be used for the sampling and analysis.

~~The Pre-RI Assessment report will present the results of the Pre-RI Assessment including figures and tables presenting the results of any sampling and analysis. The report will present conclusions regarding the likelihood of past or present source(s) and pathway(s) for the release of hazardous substances to sediments adjacent to Respondent's facility and whether a re-evaluation of the priority of Respondent's facility is appropriate.~~

The results of the Pre-RI Assessment shall be used to determine whether further action is needed to assure protection of present and future public health, safety and welfare, or the environment. No further work shall be required under this Agreement and SOW if, based on historical information and the results of the Pre-RI Assessment or subsequent facility investigation, DEQ reasonably determines that there is no likely present source and pathway for the release of hazardous substances to surface water or sediments at or from Respondent's facility for which DEQ could require a removal action or remedial investigation under ORS 465.200 et seq. Further, should the pre-RI assessment or subsequent facility investigation provide enough information to re-evaluate the priority of the facility, Respondent may request that DEQ perform this evaluation. Should it be determined by DEQ that the facility no longer presents a high priority threat to present and future public health, safety, and welfare or the environment, no further RI work with respect to the uplands portions of the facility shall be required under this Agreement and SOW.

#### **IV. REMEDIAL INVESTIGATION PROPOSAL**

If DEQ determines that further RI work is required (or if Respondent elects not to perform a Pre-RI Assessment), Respondent shall prepare an RI proposal. The RI Proposal shall briefly discuss Respondent's proposed approach to the RI, addressing soil, groundwater, surface water, sediments, and air. The proposal will provide the framework for the RI Work Plan and will include at a minimum, a summary of data collected to date, a conceptual site model (including a conceptual site hydrogeologic model), a description of RI goals and objectives and an estimated schedule for completion of the RI. The RI proposal shall consider methodologies presented in the Portland Harbor Sediment Management Plan and the Portland Harbor Sediment Investigation Work Plan.

## **V. REMEDIAL INVESTIGATION WORK PLAN**

The work plan shall be developed in accordance with applicable Oregon Administrative Rules (OAR 340-122-010 through -115), DEQ guidance, and the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, OSWER Directive 9355.3-01, 1988, as appropriate. Existing data may be used if it meets data quality objectives for the RI. The results of the RI shall be utilized to guide data collection efforts performed as part of the Portland Harbor RI/FS Work Plan. ~~The need for the RI Work Plan shall be evaluated based on the results of the pre-RI Assessment.~~ The submitted work plan shall include, but not be limited to the following items:

### **A. PROJECT MANAGEMENT PLAN**

The RI Work Plan shall include a proposed schedule for submittals and implementation of all proposed activities and phases pertaining to this scope of work (this schedule will include target dates for the submittal of a Risk Assessment work plan, and submittal of draft and final Remedial Investigation, and Risk Assessment reports); a description of the personnel (including subcontractors, if known) involved in the project, and their respective roles in the project; and a discussion of how variations from the approved work plan will be managed.

### **B. SITE DESCRIPTION**

The RI work plan shall include a discussion of the current understanding of the physical setting of the facility and surrounding area; the facility history; hazardous substance and waste management history; facility operations conducted on, in, over or adjacent to the Willamette River and current facility conditions.

### **C. SITE CHARACTERIZATION PLAN**

The Site Characterization plan shall be consistent with DEQ guidance and the requirements specified in OAR 340-122-080. The site characterization plan shall include, but not be limited to, characterization of the hazardous substances, characterization of the facility, identification of potential receptors and the collection and evaluation of information relevant to the identification of hot spots of contamination, and shall address the following:

#### **1. Soils**

Objective: To identify and characterize releases of hazardous substances from the facility to soils.

Scope: The plan shall supplement previous soil sampling at the facility. The plan shall address all areas of the

facility which could potentially have received spills, leaks from tanks or piping, been used for waste treatment or disposal, or have been affected by contaminated surface water or storm water runoff, and all other areas of the facility where soil contamination is known or suspected.

Procedures: The plan shall be designed and conducted to determine the vertical and lateral extent of soil contamination, determine the extent to which soil contamination may contribute to Willamette River sediment contamination, characterize the facility geology, determine the physical and chemical soil characteristics relevant to the RI, evaluate the potential for contaminant migration and gather the information necessary to identify hot spots of contamination. The plan shall include the proposed methodology for characterizing soil.

## 2. Groundwater

Objective: To identify and characterize releases of hazardous substances from the facility to groundwater.

Scope: The plan shall supplement previous investigations at the facility and shall identify and characterize all past, current and potential releases of hazardous substances to groundwater from the facility.

Procedures: The plan shall be designed and conducted to determine the vertical and lateral extent of groundwater contamination, both on and, if applicable, off-site; estimate the rate of contaminant flux to the Willamette River; determine the extent to which free phase product is migrating to the Willamette River; characterize the facility hydrogeology, determine the physical and chemical water bearing zone characteristics relevant to the RI; evaluate the potential for contaminant migration through groundwater; and gather the information necessary to identify hot spots of contamination. The plan shall include the proposed methodology for characterizing groundwater. Alternative methods for characterizing groundwater should be considered to accelerate the RI. Monitoring wells and other holes must be drilled, constructed and decommissioned in accordance with OAR Chapter 690, Division 240 and DEQ "Ground Water Monitoring Well, Drilling, Construction and Decommissioning" guidelines (DEQ 1992).

## 3. Surface Water

Objective: To identify and characterize releases of hazardous substances from the facility to surface water.

Scope: The plan shall supplement previous investigations at the facility and shall identify and characterize all past,

current, and potential impacts to surface waters from the facility.

Procedures: The plan shall be designed to determine the extent to which surface water may have been impacted by releases of hazardous substances at the facility; determine the nature and extent of surface water contamination; characterize the facility hydrology; determine the physical and chemical surface water characteristics relevant to the RI including flow characteristics; evaluate the potential for contaminant migration and gather the information necessary to identify hot spots of contamination. The plan shall include the proposed methodology for characterizing surface water.

#### 4. Sediments

Objective: To identify and characterize releases of hazardous substances from the facility to sediments.

Scope: The plan shall supplement previous investigations at the facility, shall identify and characterize all past, current, and potential releases of hazardous substances to sediments from the facility in a manner consistent with the Portland Harbor Sediment RI/FS. Characterization of the nature and extent of sediment contamination shall not be subject to this Agreement, but is contemplated to be completed through the Portland Harbor Sediment RI/FS.

Procedures: The plan shall be designed to identify sources of sediment contamination from the facility, and characterize release mechanisms from the facility to sediments. The plan shall include the proposed methodology for characterizing releases to sediments and as applicable shall utilize methodologies presented in the Portland Harbor Sediment Management Plan and the Portland Harbor Sediment Remedial Investigation and Feasibility Study Work Plan.

#### 5. Air

Objective: To identify and characterize any unpermitted release of hazardous substances to the air, from soil, surface water, or groundwater contamination at the facility.

Scope: The plan shall supplement previous investigations at the facility and shall identify and characterize all past, current and potential releases (e.g. contaminated soil or groundwater) of hazardous substances to air.

Procedures: The plan shall include the proposed methodology for evaluating air emissions using appropriate emission calculations and/or a field sampling program. The plan shall be designed to delineate the nature and extent of contamination, characterize the site climatology, determine

the physical and chemical air characteristics relevant to the RI, evaluate the potential for contaminant migration to the Willamette River and surrounding areas and gather the information necessary to identify hot spots of contamination.

6. Identification of Current and Reasonably Likely Future Land and Water Use

Objective: To identify current and reasonably likely future land and water uses in the locality of the facility not including those of the Willamette River.

Scope: The plan shall be designed to identify current and reasonably likely future land and water uses for the purposes of identifying hot spots of contamination and conducting the baseline human health and ecological risk assessments based on OAR 340-122-080, DEQ Guidance, and the Portland Harbor Sediment Management Plan.

Procedures: The plan shall include the proposed methodology for identifying current and reasonably likely future land and water uses in the locality of the facility.

D. **SAMPLING AND ANALYSIS PLAN (SAP)**

Objective: To adequately document all sampling and analysis procedures.

Scope: In preparation of the SAP, the following guidance documents shall be utilized: Data Quality Objectives for Remedial Response Activities, EPA/540/G-87/004 (OSWER Directive 9355.0-7B), March, 1987; Test Methods for Evaluating Solid Waste, SW-846; and A Compendium of Superfund Field Operations Methods, EPA/540/P-87/001 (OSWER Directive 9355.0-14), December, 1987. The SAP shall address all topics listed in Environmental Cleanup Division Policy #760.000, Quality Assurance Policy.

Procedures: The work plan shall include a sampling and analysis plan (SAP). The SAP shall include quality assurance and quality control (QA/QC) procedures for both field and lab procedures. The SAP shall be sufficiently detailed to function as a manual for field staff.

E. **HEALTH AND SAFETY PLAN (HASP)**

Objective: To establish policies and procedures to protect workers and the public from the potential hazards posed by a hazardous materials site.

Scope: The HASP portion of the work plan shall comply with 29 CFR 1910.120 and OAR Chapter 437, Division 2.

Procedures: The HASP shall include a description of risks related to RI activities, protective clothing and equipment, training, monitoring procedures, decontamination procedures and emergency response actions.

**F. MAPS**

The work plan shall include a map or maps of the facility, which clearly shows facility topography, on-site structures, waste disposal areas and proposed sampling locations.

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**VI. EVALUATION AND IMPLEMENTATION OF SOURCE CONTROL MEASURES**

Objective: To implement necessary source control measures to address contaminant migration to the Willamette River that warrants removal action under OAR 340-122-070.

Scope: The plan shall gather sufficient information to evaluate, design and implement necessary source control measures.

Procedures: The plan shall be designed to and conducted to characterize all release mechanisms to the Willamette River. Characterization data shall be adequate to evaluate, design and implement necessary source control measures. Source control measures shall address contaminant migration to the river through overland transport, storm water runoff, free phase product migration, direct release, and/or dissolved groundwater contaminant migration that warrant removal action under OAR 340-122-070.

Termination: Respondent's obligations with respect to any source control measures implemented under this SOW shall terminate upon implementation of a remedy or entry of a consent decree, unilateral order, or other order that requires remedial action with respect to the facility that effectively serves to control that source.

**VII. RISK ASSESSMENT WORK PLAN**

**A. UPLAND HUMAN HEALTH RISK ASSESSMENT PLAN**

Objective: To evaluate the collective demographic, geographic, physical, chemical, and biological factors at the facility, for the purposes of characterizing current or reasonably likely future risks to human health as a result of a threatened or actual release(s) of a hazardous substance at or from the facility; documenting the magnitude of the potential risk at the facility; supporting risk management decisions; and establishing remedial action goals if necessary.

Scope: The human health risk assessment shall evaluate risk in the context of current and reasonably likely future land and water uses and in the absence of any actions to



control or mitigate these risks (i.e., under an assumption of no action). The human health risk assessment portion of the work plan shall be developed based on the requirements specified in OAR 340-122-084, DEQ guidance, and the Risk Assessment Guidance for Superfund - Human Health Evaluation Manual Part A, United States Environmental Protection Agency (EPA) Interim Final, July 1989 (RAGS-HHEM). A suggested outline for the human health evaluation is given in Exhibit 9-1 of the RAGS-HHEM. The work plan should use this outline as a framework for discussing the methodologies and assumptions to be used in assessing the potential human health risks at the facility.

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Procedure: The plan shall describe the different tasks involved in preparing the human health risk assessment. The human health risk assessment can be completed using either deterministic or probabilistic methodologies. If probabilistic methodologies are to be used, then Respondent shall discuss risk protocol with DEQ before the commencement of a probabilistic risk assessment.

The upland human health risk assessment shall be designed to achieve the following:

1. Develop appropriate exposure units considering the nature, extent, and distribution of contamination and the reasonably likely future land and water use in the locality of the facility;
2. Establish data quality objectives for each exposure unit identified;
3. Collect data appropriate to satisfy the data quality objectives for each exposure unit;
4. Identify contaminants of interest for each media of concern;
5. Develop exposure scenarios based on current and reasonably likely land use, facility features and populations potentially exposed;
6. Identify appropriate exposure factors for all exposure pathways to be evaluated;
7. Identify the appropriate toxicity factors for all exposure pathways to be evaluated; and
8. Quantify the risks to human health at the facility.

#### **B. UPLAND ECOLOGICAL RISK ASSESSMENT PLAN**

Objective: To evaluate the collective demographic, geographic, physical, chemical, and biological factors at the facility, for the purposes of characterizing current or reasonably likely future risks to the environment as a result of a threatened or actual release(s) of a hazardous substance at or from the facility; quantifying the potential risk at a facility; supporting risk management decisions; and establishing remedial action goals if necessary.

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Scope: The ecological risk assessment shall evaluate risk in the context of current and reasonably likely future land and water uses and in the absence of any actions to control or mitigate these risks (i.e., under an assumption of no action). The ecological risk assessment will use a tiered approach (with four levels) to produce a focused and cost-effective assessment of risk. The ecological risk assessment work plan shall be developed based on the requirements specified in rule under OAR 340-122-084 and DEQ guidance.

Procedure: The plan shall describe the different tasks involved in preparing the ecological risk assessment. Ecological risk assessments may include a level I scoping plan; a level II screening plan; a level III baseline plan; and a level IV field baseline plan. The level III and level IV baseline plans shall include an exposure analysis, an ecological response analysis, a risk characterization and an uncertainty analysis as required by OAR 340-122-084(3). The ecological risk assessment can be completed using either deterministic or probabilistic methodologies. If probabilistic methodologies are to be used, then Respondent shall discuss risk protocol with DEQ before the commencement of a probabilistic risk assessment.

Terrestrial habitats and receptors shall be evaluated through the following approach:

1. Complete a Level I Scoping assessment per ODEQ guidance for the terrestrial portion of the facility.
2. Make a preliminary determination of locality of the facility with respect to terrestrial receptors and current and potential future exposure to facility-related contaminants.
3. Determine potential for presence/absence of terrestrial threatened or endangered species.

## **VIII. REPORTS**

### **A. QUARTERLY REPORTS**

Two (2) copies of the Quarterly Reports shall be submitted to DEQ by the 15th day of the quarter following the reporting period. The quarterly reports shall summarize activities performed, data results collected or received and problems encountered or resolved during the previous quarter and activities planned for the upcoming quarter.

### **B. REMEDIAL INVESTIGATION REPORT**

The Remedial Investigation report shall follow the outline in Table 3-13 (page 3-30 - 3-31) in the CERCLA RI/FS guidance, as applicable, and address the items listed below:

1. Executive Summary.

2. Introduction.

3. Facility Background.

A discussion and supporting maps of facility operations, facility description, facility setting, and current and reasonably likely future land and water uses.

4. Study Area Investigation.

A discussion of the investigative procedures and results for soil, groundwater, surface water, sediments and air.

5. Summary and Conclusions.

A discussion of the nature, extent, distribution and environmental fate and transport of contaminants in soil, groundwater, surface water, sediments and air.

6. Appendices.

Detailed information supporting the results of the Remedial Investigation shall be submitted in the Appendices of the report.

C. **RISK ASSESSMENT REPORT**

1. Human Health Risk Assessment Report

The results of the human health risk assessment should follow DEQ risk assessment guidance for human health and RAGS-HHEM Part A.

2. Ecological Risk Assessment Report

The main sections of the ecological risk assessment report should follow specific DEQ guidance for report formats at each level (I-III).

D. **REPORT DISTRIBUTION.**

1. Three (3) bound copies and one (1) unbound copy of all reports should be submitted to DEQ.
2. DEQ requests that all copies be duplex printed on recycled paper.